4. Use the number keys to enter the higher range you want to search, then press ENTER again. If you enter higher frequency first and lower frequency for the second then these frequencies are automatically replaced.

5. If necessary, input the character pressing TEXT and number keys.

SCANNING THE CHANNELS

To begin scanning channels or to start scanning again after monitoring a specific channel, press SCAN.

Notes:
. You must store frequencies into channels before the scanner can scan them.
. The scanner does not scan empty channels.

The scanner scans through all channels (except those you have locked out) in the active banks (see "Locking Out Channels, Frequencies and Trunked ID" on page 26 and "Turning Channel-Storage Banks Off and On" below).

TURNING CHANNEL-STORAGE BANKS OFF AND ON

To turn off banks while scanning, press the bank's number key until the bank's number disappears. The scanner does not scan any of the channels within the banks you have turned off.

Notes:
. You cannot turn off all banks. There must be at least one active bank.
. You can manually select any channel in a bank, even if the bank is turned off.

To turn on banks while scanning, press the number key until the bank's number appears.

Open and Close Mode

PL, DPL, LTR, MOT, and ED mode are communication systems using the tone squelch or trunking system. The scanner scans signals of all the modes when it is set to OPEN mode. When it is set to the CLOSE mode, the scanner receives signals at the following condition.

1. The signal is AM or FM mode.

2. At PL or DPL mode, the signal's ID code matches with the programmed ID code. (When the ID code is set to NONE, the scanner receives the signal.)

3. At LT, MO or ED mode, the signal's ID code matches with the programmed ID code. (When ID code is set to NONE at LT and ED mode, the scanner receives the signal.)

4. The receive mode at the channel memory is not same the trunk memory's mode.

OPEN or CLOSE mode is set in each channel storage bank. + or - is displayed under the channel storage bank's number while scanning. Or, the status display (MANUAL mode or receiving a signal while SCAN) shows the OPEN/CLOSE mode at upper line.

add LCD illustration (Fig. 7)

To change the OPEN/CLOSE mode, do the following:

1. Press MANUAL.

2. Select the channel-storage bank using FUNC and (up button) or (down button).

3. Press FUNC then press 2. The display shows Bank OPEN or Bank CLOSED.

TUNING THE FREQUENCY MANUALLY

You can find a frequency manually. Moreover, the frequency found while searching can be watched.

To tune to the frequency, follow these steps:

1. Press TUNE.

2. Use the number keys to enter the frequency.

3. Press ENTER.

4. Press (up button) to move 1 step upward. Press (down button) to move 1 step downward. To move upward or downward in 1 MHz, press FUNC then press (up button) or (down button). To save the frequency into a channel (bank 9 only), press FUNC then press ENTER. Stored @ 9xx appears on the display (xx: channel number).

Moreover, when the scanner stops on a frequency while searching, press FUNC then press TUNE. And press (up button) or (down button) to tune the frequency.

Notes:
. This scanner can not change the step frequency in the TUNE mode.
. You can change the receiving mode in the TUNE mode.

DELETING FREQUENCIES

1. Press MANUAL.

2. Use the number keys to enter the channel containing the frequency you want to delete.

3. Press MANUAL again.

4. Press PGM to enter the program mode. M changes to P.

5. Press FUNC.

6. Press CL. The frequency number changes 0.0000 MHz.

LISTENING TO THE WEATHER BAND

The FCC (Federal Communications Commission) has allocated channels for use by the National Oceanic and Atmospheric Administration (NOAA). Regulatory agencies in other countries have also allocated channels for use by their weather reporting authorities.

NOAA and your local weather reporting authority broadcast your local forecast and regional weather information on one or more of these channels.

Listening to a Weather Channel

To hear your local forecast and regional weather information, simply press WX. Your scanner scans through the weather band. Your scanner should stop within a few seconds on your local weather broadcast.

WX Alert Feature

This scanner can detect the weather alert tone. The WX alert warns you of serious weather conditions by sounding an alarm if the weather service broadcasts the weather alert tone.

To listen to the alert tone, press FUNC then press WX while you are listening the WX channel. The scanner scans WX channels and WX Standby appears on the display.
To cancel the operation, press FUNC then press WX again. If the scanner detects the weather alert then it sounds an alarm, press any key to cancel the weather alert operation.

Receive WX SAME

During receive WX channel if there is SAME (Specific Area Message Encording) code then the scanner sounds an alarm and indicates the event of the weather on the LCD. Press any key to cancel the alarm and listens to the reports.

SPECIAL FEATURES

DELAY

Many agencies use a two-way radio system that might have a pause of several seconds between a query and a reply. To avoid missing a reply, you can program a 2-second delay into any of your scanner's channels or frequencies. Then, when the scanner stops on the channel or frequency, D appears on the display and the scanner continues to monitor the channel/frequency for 2 seconds after the transmission stops before it resumes scanning or searching.

You can program a 2-second delay in any of these ways:

. If the scanner is scanning and stops on an active channel, quickly press FUNC then press DELAY before it starts to scan again.

. If the desired channel is not selected, manually select the channel then press FUNC then press DELAY.

. If the scanner is searching, press FUNC then press DELAY during the search. In searching, it sets the each search bank to set the delay.

LOCKING OUT CHANNELS, FREQUENCIES AND TRUNKING ID

You can scan existing channels or search frequencies faster by locking out channels or frequencies that have a continuous transmission, such as a weather channel.

Locking Out Channels

To lock out a channel while scanning, press L/OUT when the scanner stops on the channel. To lock out a channel manually, select the channel then press L/OUT until L appears on the display.

Note: You can still manually select locked-out channels.

To remove the lockout form a channel, manually select the channel and press L/OUT until L disappears from the display.

Reviewing the Lock Out Channels

To review the channels you locked out as follows:

1. Press MANUAL.

2. Press FUNC then press L/OUT. As you press FUNC then press L/OUT, the scanner displays all locked-out channels.

Locking Out Frequencies

To lock out a frequency during a search, press L/OUT when the scanner stops on the frequency. The scanner locks out the frequency, then continues searching.

Notes:
. The scanner does not store locked-out frequencies during a search.
. You can lock out as many as 50 frequencies in each bank. If you try to lock out more, Memory full! appears on the display.
. If you lock out all frequencies in one search bank, Search up... All ranges locked out! appears on the display and the scanner does not search.

Reviewing Locked-Out Frequencies

To review the frequencies you locked out within a bank as follows:

1. Press SEARCH to start search.

2. Press FUNC then press L/OUT. The locked out frequency appear on the display. If the search bank has no locked out frequency, L/O list is empty appears on the display.

3. Select search bank pressing FUNC then press (up button) key.

4. As you press (up button), the scanner displays all locked-out frequencies within a bank.

add LCD illustration (Fig. 9)

Clear the Lock Out Frequency

To clear the locked out frequency, select the locked out frequency to use the locked-out frequencies review function, then press CL. The frequency unlock and Unlocked appear on the display about 2 seconds. Then next locked out frequency appears. If all locked out frequency clears within a bank, L/O list is empty appears on the display.

Clear All Lock Out Frequencies in one Search Bank

1. Press SEARCH.

2. Receive the signal in the search bank which you wish to clear the all lockout frequencies.

3. Press FUNC, then press 4. Confirm list clear? appears on the display. Press 1 to clear the all locked out frequency and List cleared appears on the display about 2 seconds. Press any key other than 1, to cancel the clear.

PRIORITY

With the priority feature, you can scan through programmed channels and still not miss an important or interesting call on a specific channel. When a channel is selected as the priority channel and priority is turned on, the scanner checks that channel every 2 seconds, and stays on the channel if there is activity until the activity stops.

The scanner is preset to select Channel 00 in Bank 8 as the priority channel. You can program a different channel as the priority channel. Also, you can program a weather channel as the priority channel.

Note: If you program a WX channel as the priority channel, the scanner stays the priority channel only when the scanner detects the weather alert tone.

Follow these steps to program a channel as the priority channel.

1. Press MANUAL.

2. Use the number keys to enter the channel number you want to program as the priority channel. Then press MANUAL again.

3. Press FUNC then press PRI. Pri appears on the display to the right of the frequency.

add LCD illustration (Fig. 10)

Note: This scanner can not set the priority channel if the receive mode is LT, MO, or ED.

Follow these steps to program a channel as the priority channel.

1. Press WX.

2. Select the weather channel you want to program as the priority channel.

3. Press FUNC then press PRI. Pri appears to the right of the frequency.

To turn on the priority feature, press PRI while scanning. Priority ON appears on the display and P appears on the display. The scanner checks the priority channel every 2 seconds. It stays on the channel if there is activity, Pri appears and S or M changes to P at upper left corner.

To turn off the priority feature, press PRI. Priority OFF appears on the display and P disappears from the display.

CHANGING THE RECEIVE MODE

The scanner is preset to the most common AM or FM receive mode for each frequency range. The preset mode is correct in most cases. However, some amateur radio broadcasts and trunked systems do not operate in the preset mode. If you try to listen to a broadcast when the scanner is not set to the correct receive mode, the broadcast might sound weak or distorted.

If you want to listen to and watch the private line or trunking transmission at close mode, you need to change the receive mode.

You can change receive mode by pressing MODE. Receiving mode changes as follows:

AM: AM mode
FM: FM mode
PL: FM mode, Private line (with 67.0 to 254.1 Hz PL code)
DL: FM mode, Digital private line (with 3-digit DPL code)
LT: FM mode, LTR Trunking System (with 6-digit ID code)
MO: FM mode, Motorola Trunking System (with 5-digit ID code)
ED: FM mode, EDACS Trunking System (with 4-digit ID code)

CHANGING THE FREQUENCY STEP

The scanner searches at a preset frequency step for each frequency range. Press STEP to change the step increment when moving between frequencies of a search band.
This table shows the changeable frequency steps your scanner uses for each frequency range.

Range (MHz)	Search Step (kHz)
29.000-54.000	5, 10, 15, 20, 25, 30, 50, 100
108.000-136.9875	12.5, 25, 50, 100
137.000-174.000	5, 10, 15, 20, 25, 30, 50, 100
380.000-512.000	12.5, 25, 50, 100
806.000-823.9875	12.5, 25, 50, 100
849.000-868.9875	12.5, 25, 50, 100
894..000-960.000	12.5, 25, 50, 100

USING THE ATTENUATOR

To reduce interference or noise caused by strong signals, you can reduce the scanner's sensitivity to these signals. Press ATT until A appears on the display to reduce the scanner's sensitivity.

Note: If you turn on this feature, the scanner might not receive weak signals.

To turn off the attenuator, press ATT again. A disappears from the display.

USING THE DISPLAY BACKLIGHT

You can turn on the display's backlight for easy viewing in dimly-lit areas. Press LIT to turn on the display light for 5 seconds. To turn off the light before it automatically turns off, press LIT again.

TURNING THE KEY TONE ON AND OFF

Each time you press any of the scanner's keys, the scanner sounds a tone.

Follow these steps to turn the scanner's key tone off or back on.
1. If the scanner is on, turn VOLUME OFF/MAX counterclockwise until it clicks to turn it off.

2. Turn VOLUME OFF/MAX clockwise to turn it on. Welcome To Multi-System Trunking appears on the display.

3. To turn on the key tone, press 1 while the display shows Welcome To Multi-System Trunking. To turn off the key tone, press 2 while the display shows Welcome To Multi-System Trunking.

USING THE KEYLOCK

Once you program your scanner, you can protect it from accidental program changes by turning on the keylock feature. When the keypad is locked, the only control that operate are FUNC and LIT/key symbol.

To turn on the keylock, press FUNC then press LIT/key symbol. The scanner beeps one time and Keyboard Locked appears on the display about 2 seconds.
To turn it off, press FUNC then press LIT/key symbol. The scanner beeps one time and Keyboard Unlocked appears on the display about 2 seconds.

CHANGING THE DISPLAY CONTRAST

1. Press MANUAL.

2. Press FUNC then press 9. Use Up/Down keys to set contrast. appears on the display.

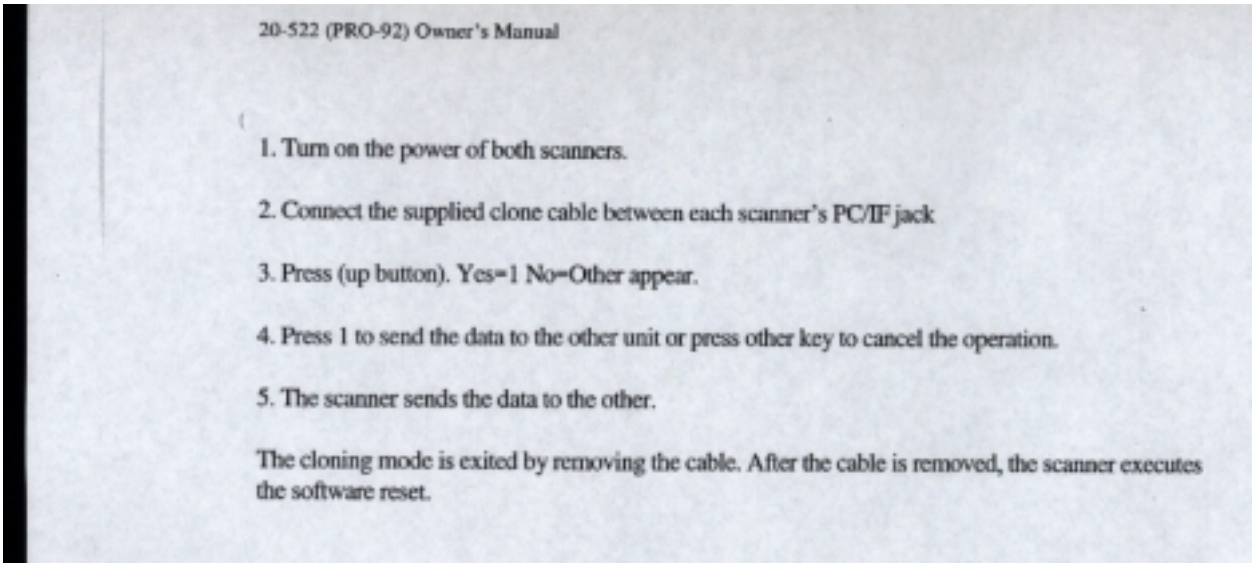
3. Press (up button) or (down button) key to select the contrast.

4. Press ENTER to set the display contrast.

CLONING THE PROGRAMMED DATA

You can transfer the programmed data to and from another PRO-92 using the supplied clone cable. You can also upload and/or download the programmed data to or from a PC using an optional PC interface kit.

To clone the data, follow these steps.



20-522 (PRO-92) Owner's Manual

1. Turn on the power of both scanners.

2. Connect the supplied clone cable between each scanner's PC/IF jack

3. Press (up button). Yes=1 No=Other appear.

4. Press 1 to send the data to the other unit or press other key to cancel the operation.

5. The scanner sends the data to the other.

The cloning mode is exited by removing the cable. After the cable is removed, the scanner executes the software reset.

TRUNKING SYSTEMS

When the trunking user transmits, one frequency is chosen from among the allocated frequencies. The ID code by which the user is identified is sent with the signal at the same time. The transmission goes to the repeater and the frequency is converted to another allocated frequency and it is sent to the other party user. The other party user is identified by the ID code. This scanner can follow the two-way communications by receiving the frequency's ID code, which you want to monitor.

It is necessary to input all the frequencies allocated in the trunking system in the region, which you want to hear in one channel-storage bank with this scanner to scan the trunking system. (See Storing Known Frequencies into Channels on page 17.)

To listen to the transmission, the mode of the programmed channel must be the same as that of the trunking channel (LT, MO, or ED).

When an ID code is received, the ID list for the bank is searched, and if found, the text name stored for the ID is displayed on the LCD. If not found, scanning resumes immediately unless the bank is in open trunking mode.

Programming Trunking ID Codes

You can program up to 100 trunking ID codes in each channel storage bank. (Total 1000 ID codes). If the scanner receives the signal in the LTR, Motorola, and EDACS, and its ID code matches with the programmed ID code in the scanner, it receives the signal in close mode. However, in open mode you can receive the trunking signal without knowing its ID code.

LTR

LTR trunking codes have a number of fields, but only the area code, home repeater, and user ID are significant in identifying the user. The talk group ID codes are displayed while receiving a transmission and you can save it in memory.

Area code – 0 or a 1
Home repeater – 01 through 20
User ID – 000 through 254

The LTR code is a six-digit numeric field:

AHHUUU

Where A is the area code, HH is the home repeater and UUU is the user code. Correct ranges are checked upon entry.

MOTOROLA

Motorola subfleet number for Type I or talk group ID codes for Type II is displayed while receiving a transmission and you can save it in memory. Mainly Motorola Type II is used in the market.

4- or 5-digit number is used for the Type I subfleet number. For example:

100-1
100-2

100-10

Type II code is a 5-digit number that must be divisible by 16. For example:

00016
00048
00272
16016
17616

If you program an incorrect ID code then, the number is automatically rounded to the nearest correct number.

EDACS

EDACS talk group ID codes are also displayed and entered. It is a decimal number from 0001 to 4095. If you enter an incorrect code, the scanner displays "Invalid ID."

RECEIVING THE TRUNKING SYSTEM

How to Set Motorola Type I Systems

To receive Type I trunking systems is a little complicated and require a fleet map to set the block number and size code. Default setting of your PRO-92 is Type II talk group IDs. However you can also scan Type I trunking system.

In Type I system, the address information for all its talk group IDs is divided into 8 equal-size block, from 0 to 7, and a size code is assigned in each block.

When you set up your scanner to track a Type I system, you must choose size code based on the block number. You can get them through the Internet or the published books. Some time the size code does not come with the block code however normally the size code are arranged by the block number from 0 to 7.
After you got the size code you can start programming.

Each size code defines the number of fleets and IDs. For example, you can see in the following table that a size code S-4 has one fleet and a total of 512 individual IDs and uses 1 block of 0 to 7. S-12 uses 2 blocks so that if you program the block, you need not to program the next block.

Size	Fleets	Sub-Fleets	IDs	Block Used
S-0	Reserved for Type II			
S-1	128	4	16	1
S-2	16	8	64	1
S-3	8	8	128	1
S-4	1	16	512	1
S-5	64	4	32	1
S-6	32	8	32	1
S-7	16	4	64	1
S-8	16	4	128	1
S-9	8	4	256	1
S-10	4	8	256	1
S-11	2	16	256	1
S-12	1	16	1024	2
S-13	1	16	2048	4
S-14	1	16	4096	8

If you could not get size code lists then try some of the common size code listed below.

Case	Size code							
Block	1	2	3	4	5	6	7	8
0	S11	S4	S4	S12	S4	S3	S10	S1
1	S11	S4	S4	—	S4	S10	S10	S1
2	S11	S4	S4	S4	S12	S4	S11	S2
3	S11	S4	S4	S4	—	S4	S4	S2
4	S11	S4	S4	S4	S4	S12	S4	S3
5	S11	S4	S4	S4	S4	—	S4	S3
6	S11	S4	S12	S4	S4	S12	S4	S4
7	S11	S4	—	S4	S4	—	S4	S4

Case	Size code							
Block	9	10	11	12	13	14	15	16
0	S4	S0	S4	S0	S3	S4	S4	S3

1	S4	S0	S0	S0	S3	S3	S4	S10
2	S0	S0	S0	S0	S11	S10	S4	S10
3	S0	S0	S0	S0	S4	S4	S11	S11
4	S0	S0	S0	S0	S4	S4	S11	S0
5	S0	S0	S0	S0	S0	S4	S0	S0
6	S0	S4	S0	S0	S0	S12	S12	S12
7	S0	S4	S0	S4	S0	---	---	---

How to set and receive trunking signals without knowing the station ID code.

1. Press PGM.

2. Select a bank using FUNC, (up button), and (down button). You are suggested to use one bank for one trunking mode and do not mix different trunking modes in one bank.

3. Select the desired channel where you want to enter the first frequency for example 00. If you want to enter EDACS system frequency then you must match the system control channel and program channel in your PRO-92. For example the system control channel 1 has to be programmed in channel 01, channel 2 is in channel 02 in your PRO-92 and do not start to program from channel 00.

4. Enter a frequency into the channel and press ENTER.

5. Press MODE key to select LT, MO or ED mode.

6. Press (up button) key to select next channel.

7. Repeat steps 4 and 6 until all system frequencies are entered.

8. Select open or close mode. + or – mark appears just before the receiving mode. For example +LT. This is Open and LTR mode setting. Turn on Open mode by pressing FUNC then 2 if necessary. Press FUNC and 2 to toggle Open or Close mode.

9. Press TRUNK to enter ID program mode.

10. Press MODE to select LT for EF Johnson, MO for Motorola or ED for EDACS (GE/Ericsson) system to scan.

11. If you want to receive Motorola Type I system then you need to set the size code in this step or if you want to receive Motorola Type II or EDACS you can skip this section and go to next steps.

Programming Motorola Type I IDs

a. Press PGM.

b. Press TRUNK.

c. Press FUNC.

d. Press 8 then you can see the following indication on the display.

add LCD illustration (Fig. 11)

e. Refer to the block and the size code which you got, enter the size code referring to the instruction of the display. Enter the size code "X" and press ENTER for each entry. If you made input mistake then press CL and correct it.

f. If you want to confirm the input then repeat above a to e and press ENTER then each time you can confirm the size code. If you found some mistake then you can use CL key and collect them.

12. Press SCAN to start scanning.

13. During scanning, press number keys to turn banks on and off. For the best trunk scanning, turn on only the banks that you want to receive the trunking mode.

14. If it detects a station then the station ID is indicated at the bottom line of the display as MO:XXXX or LT: XXXX. To store the station ID codes, press TRUNK during receiving the signal. Then the bottom line changes to ID#XXXX. This means the code is stored and if the code starts from receiving mode as MO: or LT: then it is not stored yet.

15. Press PGM to confirm if the programmed receive mode matches with the transmission's receive mode. If it is matched then T appeares. If it is not matched, it means the key operation is invalid.

add LCD illustration (Fig. 12)

Note: Default setting of the bank is for Motorola Type II. However, after you set Type I and if you want to re-change the type from I to II then enter 15 at step 11 section e. Then you can set to TypeII.

Storing Known Station ID Codes into bands

1. Press PGM.

2. Press TRUNK.

3. Select the bank where you want to set the ID using FUNC, (up button), and (down button).

4. Enter the numeric ID code and press ENTER. If necessary, use the decimal point for hyphen.

5. Press TEXT and enter text name for ID and press ENTER.

Note: If you made a mistake in Step 4, Invalid ID. appears and the scanner beeps when you press ENTER. Simply start again Step 3.
6. Repeat Steps 4 and 5 to enter the IDs.
7. Press SCAN to start scanning.

Notes for EDACS receiving:

1. During scanning the signal in EDACS mode, the audio is automatically muted until the scanner receives the signal on the working channel. Therefore normally adjust SQUELCH to the threshold position.

2. If you can not receive EDACS signal then confirm if you can receive it in MANUAL mode. One of the channels in EDACS system is used as the control channel. If you receive the control channel while changing the channels, you hear the stream of the data sound. If the scanner receives the data channel then display indicates ED: CTR-01 and the signal mark at the bottom line. The signal mark appears only when the scanner detects the data. If there is no signal mark but the sound then try to find a position where you can receive strong signal that turns on the signal mark or try to use an external out door antenna. When a control channel is received, CTR-1 appears and then CTR-1 changes to the ID code when the ID code of the control channel is decoded. After making sure that your PRO-92 decodes the code and the signal mark is on the display, then press SCAN to wait for incoming signals.

3. EDACS system uses digital code for the trunking system control. To decode the digital code, the system needs better signal to noise ratio than other trunking systems such as LTR or Motorola system. Therefore the service area is some time smaller than others. So that if you want to receive EDACS more steady then we suggest you to use an external antenna matched for the frequency.

Open or Close Trunking Mode

Open mode can be selected on a per-bank basis. In open trunking mode, the ID list is used to look up ID names, but scanning will stop on any ID code. When closed, scanning will stop only on signals that have an ID code that is found in the ID list for the bank.

ID Hold

You can set your scanner to follow a trunking signal, which you wish to track while scanning. Hold down TRUNK more than 2 seconds. ID hold ON appears on the display.

add LCD illustration (Fig. 8)

Trunking Banks

Any bank can be a trunking bank, and more than one bank can be trunking banks at the same time.

To enter an EDACS frequency, the system channel number must match the channel where you want to program. This is very important for EDACS and if the system channel does not match with your receiving channel then it can not receive EDACS communications.

To be a trunking bank, one or more channels must be programmed in the bank with a trunking mode (LTR, Motorola or EDACS). In addition, the bank's trunking mode (also LTR, Motorola or EDACS) must be the same as the trunking channel's mode.

Locking Out Trunking ID Code

To lock out a trunking ID, follow these steps:

1. Press PGM.

2. Press TRUNK.

3. Use (up button) or (down button) or FUNC to select the ID code. Press (up button) or (down button) to move ID memory and press FUNC then press (up button) or (down button) to move bank.

4. Press L/OUT to lock out the ID. L appears on the display.

To remove the lock out from trunking ID, manually select the ID memory, and press L/OUT until L disappears from the display.

Reviewing Locked-Out ID

To review the ID code you locked out within a bank, follow these stpes:

1. Press PGM then press TRUNK.

2. Press FUNC then press L/OUT. The locked out ID appears on the display. If the ID memory bank has no locked out ID, you hear the low beep tone.

3. Select search bank pressing FUNC then press (up button) or (down button).

4. As you press FUNC then press L/OUT, the scanner displays all locked-out frequencies within a bank.

CLEARING TRUNKING ID CODE

1. Press PGM.

2. Press TRUNK.

3. Use the FUNC and (up button) or (down button) key to select the ID code to clear it.

4. Press FUNC then press CL key.

Clearing All ID Codes in One Bank

You can clear all ID codes within a bank. This lets you quickly delete all trunking ID code from a bank if, for example, you want to use the bank to store a different set of trunking ID codes.

1. Press PGM.

2. Press TRUNK to enter ID memory mode.

3. Select ID bank using FUNC, (up button) or (down button) key.

4. Press FUNC, then press 3. Confirm list clear? 1=YES Press other key for NO. appears on the display.

5. Press 1 to clear the all trunking ID codes within a bank.

Note: To cancel the deletion, press any key except 1. The scanner returns to the ID memory mode.

A GENERAL GUIDE TO SCANNING

Reception of the frequencies covered by your scanner is mainly "line-of-sight." That means you usually cannot hear stations that are beyond the horizon.

GUIDE TO FREQUENCIES

US Weather Frequencies

162.400	162.425	162.450	162.475
162.500	162.525	162.550	

Ham Radio Frequencies

Ham radio operators often transmit emergency information when other means of communication break down. The following chart shows the frequencies the scanner receives that Ham radio operators normally use:

Wavelength (meters)	Frequencies (MHz)
10-Meter	29.000-29.700
6-Meter	50.000-54.000
2-Meter	144.000-148.000
70-cm	420.000-450.000
33-cm	902.000-928.000

Birdie Frequencies

Every scanner has birdie frequencies. Birdies are signals created inside the scanner's receiver. These operating frequencies might interfere with transmissions on the same frequencies. If you program one of these frequencies, you hear only noise on that frequency. If the interference is not severe, you might be able to turn SQUELCH clockwise to cut out the birdie.

The birdie frequencies on this unit to watch for are:

birdie frequencies will add

To find the birdies in your scanner, begin by disconnecting the antenna and moving it away from the scanner. Make sure that no other nearby radio or TV sets are turned on near the scanner. Use the search function and scan every frequency range from its lowest frequency to the highest. Occasionally, the searching will stop as if it had found a signal, often without any sound. That is a birdie. Make a list of all the birdies in your scanner for future reference.

GUIDE TO THE ACTION BANDS

United States Broadcast Bands

In the United States, there are several broadcast bands. The standard AM and FM bands are probably the most well known. There are also four television audio broadcast bands – the lower three transmit on the VHF band and the fourth transmits on the UHF band.

Typical Band Usage

VHF Band	
Low Range	29.00-50.00 MHz
6-Meter Amateur	50.00-54.00 MHz
U.S. Government	137.00-144.00 MHz
2-Meter Amateur	144.00-148.00 MHz
High Range	148.00-174.00 MHz
UHF Band	
Military Aircraft	380.00-384.00 MHz
U.S. Government	406.00-420.00 MHz
70-cm Amateur	420.00-450.00 MHz
Low Range	450.00-470.00 MHz
FM-TV Audio Broadcast, Wide Band	470.00-512.00 MHz
800 Band Law Enforcement	806.00-824.00 MHz
Conventional Systems	851.00-856.00 MHz
Conventional/Trunked Systems	856.00-866.00 MHz
Public Safety	866.00-869.00 MHz
Trunked Private/General	894.00-960.00 MHz

Primary Usage

As a general rule, most of the radio activity is concentrated on the following frequencies:

VHF Band

Activities	Frequencies
Government, Police, and Fire	153.785-155.980 MHz
Emergency Services	158.730-159.460 MHz
Railroad	160.000-161.900 MHz

UHF Band

Activities	Frequencies
Land-Mobile "Paired Frequencies"	450.000-470.000 MHz
Base Stations	451.025-454.950 MHz
Mobile Units	456.025-459.950 MHz
Repeater Units	460.025-464.975 MHz
Control Stations	465.025-469.975 MHz

Note: Remote control stations and mobile units operate at 5 MHz higher than their associated base stations and relay repeater units.

BAND ALLOCATION

To help decide which frequency ranges to scan, use the following listing of the typical services that use the frequencies your scanner receives. These frequencies are subject to change, and might vary from area to area. For a more complete listing, refer to the RadioShack "Police Call," "Aeronautical Frequency Directory," and "Maritime Frequency Directory."

Abbreviations	Services
AIR	Aircraft
BIFC	Boise (ID) Interagency Fire Cache
BUS	Business
CAP	Civil Air Patrol
CB	Citizens Band
CCA	Common Carrier
CSB	Conventional Systems
CTSB	Conventional/Trunked Systems
FIRE	Fire Department
HAM	Amateur (Ham) Radio
GOVT	Federal Government
GMR	General Mobile Radio
GTR	General Trunked
IND	Industrial Services (Manufacturing, Construction, Farming, Forest Products)
MAR	Military Amateur Radio
MARI	Maritime Limited Coast (Coast Guard, Marine Telephone, Shipboard Radio, Private Stations)
MARS	Military Affiliate Radio System
MED	Emergency/Medical Services
MIL	U.S. Military
MOV	Motion Picture/Video Industry
NEW	New Mobile Narrow
NEWS	Relay Press (Newspaper Reporters)
OIL	Oil/Petroleum Industry
POL	Police Department
PUB	Public Services (Public Safety, Local Government, Forestry Conservation)
PSB	Public Safety
PTR	Private Trunked
ROAD	Road & Highway Maintenance
RTV	Radio/TV Remote Broadcast Pickup
TAXI	Taxi Services
TELB	Mobile Telephone

	(Aircraft, Radio Common Carrier, Landline Companies)
TELC	Cordless Phones
TELM	Telephone Maintenance
TOW	Tow Trucks
TRAN	Transportation Services
	(Trucks, Tow Trucks, Buses, Railroad, Other)
TSB	Trunked Systems
TVn	FM-TV Audio Broadcast
USXX	Government Classified
UTIL	Power & Water Utilities
WTHR	Weather

HIGH FREQUENCY (HF)

10-Meter Amateur Band

29.00-29.700	HAM

VERY HIGH FREQUENCY (VHF)

VHF Low Band

29.900-30.550	GOVT, MIL
30.580-31.980	IND, PUB
32.000-32.990	GOVT, MIL
33.020-33.980	BUS, IND, PUB
34.010-34.990	GOVT, MIL
35.020-35.980	BUS, PUB, IND, TELM
36.000-36.230	GOVT, MIL
36.250	Oil Spill Cleanup
36.270-36.990	GOVT, MIL
37.020-37.980	PUB, IND
38.000-39.000	GOVT, MIL
39.020-39.980	PUB
40.000-42.000	GOVT, MIL, MARI
42.020-42.940	POL
42.960-43.180	IND
43.220-43.680	TELM, IND, PUB
43.700-44.600	TRAN
44.620-46.580	POL, PUB
46.600-46.990	GOVT, TELC
47.020-47.400	PUB
47.420	American Red Cross
47.440-49.580	IND, PUB
49.610-49.990	MIL, TELC

6-Meter Amateur Band

20-522 (PRO-92) Owner's Manual

50.000-54.000	HAM
Aircraft Band	
108.000-121.490	AIR
121.500	Air Emergency
121.510-136.975	AIR
U.S. Government Band	
137.000-144.000	GOVT, MIL
2-Meter Amateur Band	
144.000-148.000	HAM
VHF High Band	
148.050-150.345	CAP, MAR, MIL
150.775-150.790	MED
150.815-150.980	TOW, Oil Spill Cleanup
150.995-151.475	ROAD, POL
151.490-151.955	IND, BUS
151.985	TELM
152.0075	MED
152.030-152.240	TELB
152.270-152.480	IND, TAXI, BUS
152.510-152.840	TELB
152.870-153.020	IND, MOV
153.035-153.725	IND, OIL, UTIL
153.740-154.445	PUB, FIRE
154.490-154.570	IND, BUS
154.585	Oil Spill Cleanup
154.600-154.625	BUS
154.655-156.240	MED, ROAD, POL, PUB
156.255-157.425	OIL, MARI
157.450	MED
157.470-157.515	TOW
157.530-157.725	IND, TAXI
157.740	BUS
157.770-158.100	TELB
158.130-158.460	BUS, IND, OIL, TELM, UTIL
158.490-158.700	TELB
158.730-159.465	POL, PUB, ROAD
159.480	OIL
159.495-161.565	TRAN
161.580-162.000	OIL, MARI, RTV
162.0125-162.350	GOVT, MIL, USXX
162.400-162.550	WTHR
162.5625-162.6375	GOVT, MIL, USXX
162.6625	MED
162.6875-163.225	GOVT, MIL, USXX

Page 42

163.250	MED
163.275-166.225	GOVT, MIL, USXX
166.250	GOVT, RTV, FIRE
166.275-169.400	GOVT, BIFC
169.445-169.505	Wireless Mikes, GOVT
169.550-169.9875	GOVT, MIL, USXX
170.000-170.150	BIFC, GOVT, RTV, FIRE
170.175-170.225	GOVT
170.245-170.305	Wireless Mikes
170.350-170.400	GOVT, MIL
170.425-170.450	BIFC
170.475	PUB
170.4875-173.175	GOVT, PUB, Wireless Mikes
173.225-173.5375	MOV, NEWS, UTIL, MIL
173.5625-173.5875	MIL, Medical/Clash Crews
173.600-173.9875	GOVT

ULTRA HIGH FREQUENCY (UHF)

U.S. Government Band

406.125-419.975	GOVT, USXX

70-cm Amateur Band

420.000-450.000	HAM

UHF Low Band

450.050-450.925	RTV
451.025-452.025	IND, OIL, TELM, UTIL
452.0375-453.000	IND, TAXI, TRAN, TOW, NEWS
453.0125-454.000	PUB, OIL
454.025-454.975	TELB
455.050-455.925	RTV
457.525-457.600	BUS
458.025-458.175	MED
460.0125-460.6375	FIRE, POL, PUB
460.650-462.175	BUS
462.1875-462.450	BUS, IND
462.4625-462.525	IND, OIL, TELM, UTIL
462.550-462.925	GMR, BUS
462.9375-463.1875	MED
463.200-467.925	BUS

FM-TV Audio Broadcast, UHF Wide Band
(Channels 14 through 69 in 6 MHz steps)

475.750	Channel 14
481.750	Channel 15
487.750	Channel 16

493.750	Channel 17
499.750	Channel 18
505.750	Channel 19
511.750	Channel 20

Note: Some cities use the 470-512 MHz band for land/mobile service.

Conventional Systems Band – Locally Assigned
851.0125-855.9875 CSB

Conventional/Trunked Systems Band – Locally Assigned
856.0125-860.9875 CTSB

Trunked Systems Band – Locally Assigned
861.0125-865.9875 TSB

Public Safety Band – Locally Assigned
866.0125-868.9875 PSB

33-Centimeter Amateur Band
902.000-928.000 HAM

Private Trunked Band
935.0125-939.9875 PTR

General Trunked Band
940.0125-940.9875 GTR

FREQUENCY CONVERSION

The tuning location of a station can be expressed in frequency (kHz or MHz) or in wavelength (meters). The following information can help you make the necessary conversions.

1 MHz (million) = 1,000 kHz (thousand)

To convert MHz to kHz, multiply the number of megahertz by 1,000:

30.62 (MHz) x 1000 = 30,620 kHz

To convert from kHz to MHz, divide the number of kilohertz by 1,000:

127,800 (kHz) / 1000 = 127.8 (MHz)

To convert MHz to meters, divide 300 by the number of megahertz:

300 / 50 MHz = 6 meters

TROUBLESHOOTING

If your scanner is not working as it should, these suggestions might help you eliminate the problem. If the scanner still does not operate properly, take it to your local RadioShack store for assistance.

Problem	Possible Causes	Remedies
The scanner does not work at all.	. The batteries are dead.	. Replace the batteries with fresh ones or recharge the battery pack or rechargeable batteries (if used).
	. The optional AC or DC adapter is not connected.	. Be sure the adapter is fully inserted into the PWR/DC 9V jack.
Poor or no reception.	. Improperly connected antenna.	. Be sure the antenna is properly connected.
	. Programmed frequencies are the same as birdie frequencies.	. Avoid programming frequencies listed under "Birdie Frequencies" on page 38 or only select them manually.
Keypad does not work.	Keylock is turned on.	Turn off keylock.
Keys do not work or display changes.	Undetermined error.	Turn the scanner off then on again, or reset the scanner (see "Resetting/Initializing the scanner" on Page 48).
Scanner is on but will not scan.	SQUELCH is not correctly adjusted.	Adjust SQUELCH clockwise (see "Turning On the Scanner/Setting Volume and Squelch" on Page 17).
In the scan mode, the scanner locks on frequencies that have an unclear transmission.	Birdies.	Avoid programming frequencies listed under "Birdie Frequencies" on Page 48 or only listen to them manually.

RESETTING/INITIALIZING THE SCANNER

If the scanner's display locks up or does not work properly after you connect a power source, you might need to reset or initialize it.

Important: If you have problems, first try to reset the scanner. If that does not work, you can initialize the scanner; however, initializing clears all information stored in the scanner's memory.

Resetting the Scanner

1. Turn off the scanner, then turn it on again.

2. Insert a pointed object, such as a straightened paper clip, into the reset opening on the side of the scanner. Then gently press and release the reset button inside the opening.

add illustration

Initializing the Scanner

Important: This procedure clears all information you stored in the scanner's memory. Initialize the scanner only when you are sure the scanner is not working properly.

1. Turn off the scanner, then turn it on again. Welcome To Multi-System Trunking appears on the display.

2. Press 0 then 1 while the display shows Welcome To Multi-System Trunking. Initializing Please Wait. appears on the display about 25 seconds.

CARE AND MAINTENANCE

Your RaioShack PRO-92 500-Channel Portable Scanner is an example of superior design and craftsmanship. The following suggestions will help you care for your scanner so you can enjoy it for years.

add illustration
Keep the scanner dry. If it gets wet, wipe it dry immediately. Liquids can contain minerals that can corrode the electronic circuits.

add illustration
Handle the scanner gently and carefully. Dropping it can damage circuit boards and cases and can cause the scanner to work improperly.

add illustration
Use only fresh batteries of the recommended size and type. Always remove old and weak batteries. They can leak chemicals that destroy electronic circuits.

add illustration
Use and store the scanner only in normal temperature environments. Temperature extremes can shorten the life of electronic devices, damage batteries, and distort or melt plastic parts.

add illustration
Keep the scanner away from dust and dirt, which can cause premature wear of parts.

add illustration
Wipe the scanner with a damp cloth occasionally to keep it looking new. Do not use harsh chemicals, cleaning solvents, or strong detergents to clean the scanner.

Modifying or tampering with the scanner's internal components can cause a malfunction and might invalidate its warranty and void your FCC authorization to operate it. If your scanner is not operating as it should, take it to your local RadioShack store for assistance.

SPECIFICATIONS

Frequency Coverage	
Ham	29-30 MHz (in 5 kHz steps)
VHF Lo	30-50 MHz (in 5 kHz steps)
Ham	50-54 MHz (in 5 kHz steps)
Aircraft	108-136.9875 MHz (in 12.5 kHz steps)
Government	137-144 MHz (in 5 kHz steps)
Ham	144-148 MHz (in 5 kHz steps)
VHF Hi	148-174 MHz (in 5 kHz steps)
Ham/Government	380-450 MHz (in 12.5 kHz steps)
UHF Lo	450-470 MHz (in 12.5 kHz steps)
UHF T	470-512 MHz (in 12.5 kHz steps)
UHF Hi	806-823.9875 MHz (in 12.5 kHz steps)
	849-868.9875 MHz (in 12.5 kHz steps)
	894-960 MHz (in 12.5 kHz steps)
Channels of Operation	500 channels (10 banks x 50 channels and 1000 trunking ID memories
Sensitivity (20 dB S/N):	
FM	
29-54 MHz	0.3 uV
108-136.9875 MHz	0.3 uV
137-174 MHz	0.5 uV
380-512 MHz	0.5 uV
806-960 MHz	0.7 uV
AM	
29-54 MHz	1 uV
108-136.9875 MHz	1 uV
137-174 MHz	1.5 uV
380-512 MHz	2 uV
806-960 MHz	2 uV
Selectivity:	
-6 dB	+/-10 kHz
-50 dB	+/-18 kHz
Spurious Rejection	40 dB at 154 MHz (FM)
Scanning Rate	Up to 25 channels/second
Search Rate	Up to 50 steps/second
Delay Time	2 seconds
Intermediate Frequencies (IF):	
1st	257.5 MHz
2nd	21.4 MHz
3rd	455 kHz
Priority Sampling	2 seconds
Operating Temperature	-10 °C to +60 °C
IF Rejection:	
257.5 MHz @ 154 MHz	60 dB
21.4 MHz @ 154 MHz	100 dB

Squelch Sensitivity:	
Threshold (FM and AM)	0.5 uV
Tight (FM)	25 dB
Tight (AM)	20 dB
Antenna Impedance	50 Ohms
Audio Output Power (10% THD)	240 mW
Built-in Speaker	1 3/8 inch (36 mm) 8-ohm Dynamic Type
Power Requirements	+9V DC 6 AA batteries AC Adapter (Cat. No. 273-1665) DC Adapter (Cat. No. 273-1810) Rechargeable Battery Pack (Cat. No. 23-288)
Current Drain (Squelched)	90 mA
Dimensions (HWD)	6 5/16 x 2 7/16 x 1 3/4 inches 160 x 61 x 45 mm
Weight	9.9oz without antenna and batteries (280 g)
Supplied Accessory	Antenna Rechargeable battery holder Clone cable

Specifications are typical; Individual units might vary. Specifications are subject to change and improvement without notice.

Back Cover

Warranty, Address

06A99

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